

The specification has been amended. Claims 1, 3, 4, 8-10 and 13 have been amended.

Attached hereto is a marked-up version of the changes made to the claims by this Amendment. This marked-up version has been entitled "Version With Markings To Show Changes Made."

The Examiner has objective to the specification in that the Title of the Invention is not descriptive. In order to avoid this objection, applicant has amended the Title as above set forth. The amended Title is believed to be descriptive of the invention and the Examiner's objection has been satisfied.

The Examiner has rejected applicant's claims 1-12 under 35 USC § 103(a) as unpatentable over the Cohen patent taken with the Schug patent. With respect to applicant's claims, as amended, this rejection is respectfully traversed.

Applicant's independent claims 1, 8, 9 and 10 have been similarly amended to better define applicant's invention. In particular, looking at amended independent claim 1 as representative, this claim now recites that the display mode means has a display mode suited to a brightness between the display means and right and left eyes of the user. In this way, it is possible to always display the image in a display state that the image can be seen easily by changing the display state of the image in accordance with the brightness between the display apparatus and right and left eyes of a user without regard of an amount of light entering the eyes of the user. Such a construction is not taught or suggested by the cited art of record.

The cited Cohen patent discloses an apparatus having an optical system for optically guiding ambient light from the front of a head mounted display (HMD) to the backside of the LCD of the display. The ambient light is thus used as backlight. A supplementary light source is also used for backlight and for keeping a constant contrast of the LCD by detecting

the brightness of the frontal ambient light and adjusting the brightness of the supplementary light source.

However, the Cohen patent only discloses adjusting the brightness of the supplementary light source based on the brightness of the frontal ambient light and the amount of light entering the eyes of a user is not actually detected. No consideration is given to the light entering between the display apparatus and the eyes of the user. There is, therefore, no teaching or suggestion of a display mode suited to the brightness between a display means and the right and left eyes of the user. Similarly, the Schug patent, while disclosing varying a display based on ambient light and ambient noise level, fails to teach or suggest a display mode suited to the brightness between a display means and the right and left eyes of the user.

Applicant's amended independent claims 1, 8, 9 and 10, and their respective dependent claims, thus patentably distinguish over the combination of the Cohen and Schug patents.

Applicant's independent claim 13 has also been amended to better define applicant's invention. In particular, claim 13 now recites that the display means detects the brightnesses of surroundings of the left-eye and right-eye display means, respectively. It further recites that the control means varies a video image displaying state of the left-eye display means and a video image displaying state of the right-eye display means independently of each other according to information on the brightnesses detected by the detecting means. Again, such a construction is not taught or suggested by the cited art of record.

As above-noted, the Cohen patent fails to disclose a left-eye display means and a right-eye display means. This patent, therefore, cannot and does not discloses anything regarding detecting brightnesses of surroundings of such right-eye and left-eye display means,

nor varying a video image displaying state of the left-eye display means and a video image displaying state of the right-eye display means independently of each other according to information on the detected brightnesses.

However, the Examiner has cited the Tabata patent and has argued as follows:

"It is clear that the image displaying state of the right-eye display means and the video image displaying state of the left-eye state independently each other because Tabata shows the displayed image on the right screen shifted to the left hand and the displayed image on the left screen shifted to the right hand. Thus, both screens are not dependent each other."

From a careful reading of the Tabata patent, the Examiner's above reasoning appears to be incorrect. In particular, the above movement of the images in the Tabata patent are not independently realized but occur based on a common switch operation. Specifically, the Tabata patent states at column 6, lines 8-16 the following:

"When this depth switch 17e is actuated by the user, the positions of the first and second images 31L and 31R are shifted in opposite horizontal directions as illustrated in FIG. 5. That is to say, when the first image displayed on the first liquid crystal display 22L is shifted in the right hand direction by a certain distance, the second image displayed on the second liquid image display 22R is shifted in the left hand direction by the same distance."

Thus, the Tabata patent teaches that the actuation of a depth switch results in the left and right eye images being shifted by the same amount in opposite directions. The display states of the images are therefore not independently controlled but dependently controlled by the actuation of a common switch.

Hence, the Tabata patent fails to teach or suggest anything regarding detecting brightnesses of surroundings of such a right-eye and left-eye display means, nor varying a video image displaying state of a left-eye display means and a video image displaying state of

a right-eye display means independently of each other, let alone according to information on the detected brightnesses of surroundings of a right-eye and left-eye display means.

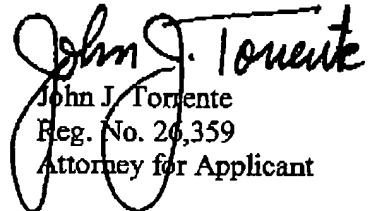
The combination of the Cohen patent and the Tabata patent thus fails to teach or suggest applicant's invention of amended claim 13, and its respective dependent claims.

In view of the above, it is submitted that applicant's claims, as amended, patentably distinguish over the cited art of record. Accordingly, reconsideration of the claims is respectfully requested.

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Respectfully submitted,

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Version With Markings To Show Changes MadeIn The Specification

Rewrite page 1, line 2, as follows: --DISPLAY [APPARATUS] MODE

DEPENDENT ON BRIGHTNESS BETWEEN DISPLAY AND LEFT AND RIGHT EYES  
OF USER--

In the Claims

Amend claims 1, 3, 4, 8-10 and 13 as follows:

1. (Amended) A display apparatus comprising:

adjustment means for adjusting a plurality of setting values related to image display; and

mode display means capable of changing over a plurality of display modes which differ in the setting values adjusted by said adjustment means,

wherein said mode display means has a display mode suited to a [bright external environment] brightness between said display means and right and left eyes of a user.

3. (Amended) A display apparatus according to claim 2, wherein in said display mode suited to a [bright external environment] brightness between said display means and right and left eyes of a user, the setting values are combined such that the brightness is bright, the contrast is strong and the contour enhancement. --.

4. (Amended) A display apparatus according to claim 1, further comprising selecting means for selecting, from among the plurality of display modes, said display mode suited to a [bright external environment] brightness between said display means and right and left eyes of a user, said selecting means being arranged to be manually operated. --.

8. (Amended) A display method for displaying an image on an image plane, wherein a display state of the image displayed on the image plane is adjusted to a display mode for which a plurality of setting values related to image display suited to a [bright external environment] brightness between a display means and right and left eyes of a user are combined.

9. (Amended) A storage medium having stored therein a program to be executed by a computer which controls a display apparatus in displaying an image on an image plane, wherein said program has a display mode for which a plurality of setting values related to image display suited to a [bright external environment] brightness between a display means and right and left eyes of a user are combined and includes a procedure for adjusting to said display mode a display state of the image displayed on the image plane.

10. (Amended) A display apparatus of head-mounted type for displaying an image in a state of being mounted on the head of a user in a position near to the eyes of the user, comprising:

    a display part arranged to display an image;  
    adjustment means for adjusting a plurality of setting values related to a display state of an image displayed by said display part;  
    mode display means for changing over a plurality of display modes which differ in the setting values adjusted by said adjustment means, and  
    control means for, when brightness between said display part and right and left eyes of a user [of an external environment] is equal to or more than a predetermined value, selecting a predetermined display mode suited to a bright external environment in preference to a display mode selected by said mode display means.

13. (Amended) A display apparatus comprising:

left-eye display means for displaying an image for a left eye;

right-eye display means for displaying an image for a right eye;

detecting means for detecting [brightness] brightnesses of surroundings of said  
left-eye and right-eye display [apparatus] means respectively; and

control means for varying a video image displaying state of said left-eye  
display means and a video image displaying state of said right-eye display means  
independently of each other according to information on the [brightness] brightnesses  
detected by said detecting means.